

Entertainment PC 99

This chapter provides a summary of the key requirements for Entertainment PC 99.

If there is a conflict with requirements or recommendations made elsewhere in this guide, the items in this chapter have precedence for Entertainment PC 99. Unless a specific requirement or exception is defined in this chapter, the requirements defined in the “PC 99 Basic Requirements” chapter apply for Entertainment PC 99.

Important: The system requirements defined in this guide provide guidelines for designing PC systems that will result in the optimal user experience with typical Windows-based applications running under either the Microsoft Windows or Windows NT Workstation operating systems. These design requirements are not the basic system requirements for running the Windows operating system.

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Entertainment PC 99 System Requirements

This section summarizes the requirements for the basic components of Entertainment PC 99 systems. System requirements for computational capabilities and memory are the same for Entertainment PC 99 as for all PC 99 systems.

1. Entertainment PC 99 system includes three IEEE 1394 ports, with at least one easily accessible connector

Recommended

The Entertainment PC 99 system should include three IEEE 1394 ports, with at least one IEEE 1394 connector in an easily accessible location (not on the rear panel) to support camcorders and other digital consumer-electronics devices.

The recommended location for an easily accessible connector is to place a port on the front of the PC. The second connector for static connections to continuously used devices can be placed on the rear of the PC.

If implemented, the IEEE 1394 ports must meet the requirements defined in the “IEEE 1394” chapter in Part 3 of this guide.

2. All Entertainment PC 99 input devices meet USB HID specifications

Recommended

For Entertainment PC 99, all keyboards, pointing devices, and game pads and their connections should be compliant with the *USB Device Class Definition for Human Interface Devices, Version 1.0* or later, and with the *USB HID Usages Table*, whether implemented as wired or wireless devices.

The game device should support at least four devices simultaneously.

Note: For family-room PC design, a wireless connection is recommended for the keyboard, pointing device, and game pad. For a pointing device, this requirement can be satisfied by using a remote-control pointing device or by using a wireless keyboard that includes a connector to enable a standard mouse to be attached. The ability to attach a standard two-button mouse is strongly encouraged, although the device itself does not need to be included with the PC.

For more information about input devices, see the “I/O Ports and Devices” chapter in Part 4 of this guide.

3. Entertainment PC 99 includes remote-control pointing device

Recommended

If a remote-control pointing device is implemented on an Entertainment PC 99 system, its command structure must be compliant with the *USB HID Usages Table*.

There is no requirement for implementing an IR or RF remote-control pointing device.

If included with an Entertainment PC 99 system, the remote-control device must have the controls defined in the following table.

Required Controls for Remote-Control Devices

Label	Icon	Function
Power	—	Toggle switch between On and Standby power state
Start	Windows flag (under Microsoft licensing agreement)	Display Start menu (same action as the keyboard Windows logo key)
—	—	Mouse pointer control, including left and right mouse buttons

In addition, the following buttons are recommended for remote-control devices.

Recommended Controls for Remote-Control Devices

Label	Icon	Function
Cancel	—	Same as the keyboard ESCAPE key
Enter	—	Same as the keyboard ENTER key
Menu	—	Display application menus or toolbar (same as the keyboard F10 key)

All buttons and any additional controls implemented by the independent hardware vendor (IHV) must comply with the current USB HID specifications, including HID usage-code specifications as defined in the *USB HID Usages Table*.

Entertainment PC 99 Audio Requirements

High-quality audio is a key differentiating feature for Entertainment PC 99. Audio fidelity and functions must be significantly better than for traditional PCs and on par with consumer-electronics stereos.

Using IEEE 1394 for positional 3-D audio and connections to home-theater systems will enable more-realistic game and video experiences. One opportunity for achieving this is to implement the audio subsystem as an external digital-to-analog converter (DAC) attached to a secondary IEEE 1394 port on the rear of the PC. This isolates the analog audio stream from the RF noise of internal PC components while enabling easy connection to either legacy analog or new Plug and Play-compatible digital stereo components.

4. Audio support meets PC 99 audio and Entertainment PC 99 requirements

Required

Recommended: Audio hardware accelerator is ready for digital audio.

Entertainment PC 99 audio must meet PC 99 audio requirements, which include requirements for audio hardware capabilities, performance metrics, and external connections. The following list summarizes the additional audio features required for Entertainment PC 99:

- Audio solution includes support for 3-D audio effects
- Input and output includes support for independent sample rates
- Audio solution supports music synthesis and echo cancellation

For more information, see the “Audio Components” chapter in Part 4 of this guide.

Entertainment PC 99 Graphics Components

This section summarizes the Entertainment PC 99 requirements for graphics adapters and monitors. For complete information about the requirements summarized in this section, see the “Graphics Adapters” chapter in Part 4 of this guide.

5. Graphics adapter for Entertainment PC 99 uses AGP or provides equivalent performance

Required

AGP graphics support meeting *AGP Interface Specification, Revision 2.0* or later, or equivalent performance is required.

6. Entertainment PC 99 graphics subsystem includes PC 99 hardware acceleration for 2-D and 3-D graphics

Required

Windows and Windows NT operating systems provide application programming interfaces (APIs) that accelerate graphics display through direct manipulation of video display memory, hardware blters, hardware overlays, and page flipping. Hardware-acceleration features for 2-D and 3-D graphics must be implemented to improve overall graphics performance, as defined in the “Graphics Adapters” chapter in Part 4 of this guide.

7. Entertainment PC 99 graphics subsystem includes support for television output if the system doesn’t have a large-screen monitor

Recommended

Support for NTSC, PAL, or both types of television output is recommended, except for systems bundled with a large-screen super VGA (SVGA) monitor.

For Entertainment PC 99, the ability to connect to a television is key to its ability to deliver more realistic television, movie, and game experiences, and to enable social computing activities. Television output integrated with the PC graphics adapter will deliver much higher image quality than external converters. As such,

this feature optimizes the usability of an Entertainment PC system connected directly to a television in the family room and for desktop systems configured to transmit graphics and video to a television in another room.

This capability must meet the PC 99 requirements for television output for composite and S-Video connectors, parameter control, and hardware filtering and scaling capabilities as defined in the “Graphics Adapters” chapter in Part 4 of this guide.

8. Entertainment PC 99 includes large-screen DDC2B color entertainment monitor

Recommended

A large-screen SVGA monitor that meets the *Display Data Channel Standard, Version 2.0*, Level B specification (DDC2B) is recommended for Entertainment PC 99 systems designed for the family room. Games, movies, and other entertainment software experiences are greatly enhanced by display screens comparable to modern television sizes—for example, 27 inches and larger in the United States.

An Entertainment PC 99 system that includes a large-screen monitor must meet the requirements for entertainment monitors defined in the “Monitors” chapter in Part 4 of this guide.

Entertainment PC 99 Video and Broadcast Components

This section summarizes the Entertainment PC 99 hardware requirements for video capture, television output, and DVD playback support. For complete information about the requirements summarized in this section, see the “Video and Broadcast Components” chapter in Part 4 of this guide.

9. Entertainment PC 99 DVD-Video and MPEG-2 playback meet PC 99 requirements

Required

DVD-Video support is required for Entertainment PC 99, so DVD playback capabilities must meet PC 99 requirements. If MPEG-2 hardware is included in an Entertainment PC 99 system, it must also meet PC 99 requirements.

10. Entertainment PC 99 supports PC 99 analog video input and capture capabilities

Recommended

WDM support must be implemented for all video input and capture capabilities as part of the PC 99 requirements. If implemented, the video input connector should be easily accessible on the Entertainment PC 99 system (that is, not on the rear panel).

11. Entertainment PC 99 includes analog television tuner*Recommended*

The NTSC or PAL decode component of the television tuner and analog video input subsystems must properly support extraction of data transmitted during the vertical blanking interval (VBI). This includes allowing certain scan lines to be placed within a separate memory buffer.

12. Entertainment PC 99 includes digital broadcast satellite subsystem*Recommended*

If this capability is included in Entertainment PC 99, the implementation must include a digital broadcast satellite network card, a smart card, and drivers that meet PC 99 requirements.

13. Entertainment PC 99 includes DTV support*Recommended*

Support for digital television (DTV) is recommended for Entertainment PC 99. If implemented, the hardware and software support for an ATSC tuner/demodulator, MPEG-2 decode capabilities, and graphics adapter must meet the requirements defined in the "Video and Broadcast Components" chapter in Part 4 of this guide.

As with all PC 99 components, compliance testing will begin when all related components are generally available.

Entertainment PC 99 References

The following represents some of the references, services, and tools available to help build hardware that is optimized to work with Windows operating systems.

Display Data Channel Standard, Version 2.0 Level B (DDC2B)

Video Electronics Standards Association (VESA)

<http://www.vesa.org>

Windows and Windows NT DDKs

MSDN Professional membership

USB Device Class Definition for Human Interface Devices, Version 1.0

USB HID Usages Table

USB Implementers Forum

<http://www.usb.org>

Checklist for Entertainment PC 99

If a recommended feature is implemented, it must meet the PC 99 requirements for that feature as defined in this document.

1. Entertainment PC 99 system includes three IEEE 1394 ports, with at least one easily accessible connector
Recommended
2. All Entertainment PC 99 input devices meet USB HID specifications
Recommended
3. Entertainment PC 99 includes remote-control pointing device
Recommended
4. Audio support meets PC 99 audio and Entertainment PC 99 requirements
Required
5. Graphics adapter for Entertainment PC 99 uses AGP or provides equivalent performance
Required
6. Entertainment PC 99 graphics subsystem includes PC 99 hardware acceleration for 2-D and 3-D graphics
Required
7. Entertainment PC 99 graphics subsystem includes support for television output if the system doesn't have a large-screen monitor
Recommended
8. Entertainment PC 99 includes large-screen DDC2B color entertainment monitor
Recommended
9. Entertainment PC 99 DVD-Video and MPEG-2 playback meet PC 99 requirements
Required
10. Entertainment PC 99 supports PC 99 analog video input and capture capabilities
Recommended
11. Entertainment PC 99 includes analog television tuner
Recommended
12. Entertainment PC 99 includes digital broadcast satellite subsystem
Recommended
13. Entertainment PC 99 includes DTV support
Recommended